



U M O D P C



Loading
Unit Cargo
612-303-02



Vehicle Load Plan Cycle



- Proper load planning & training is essential
- Load plan cycle includes:
 - Planning the load
 - Testing the load
 - Inspecting the load
 - Documenting the load



Planning the Load



- Planning for packing & loading unit equipment is important deployment preparation activity
 - Involves identifying actual space, weight, packaging material & external transport requirements
 - Proper planning saves valuable time when ordered to deploy



Planning the Load (Cont)



- Must determine how much cargo we have to determine how much space we need
- Planning factor used for determining cargo requirements is cubic feet





Cube



- Determine Volume in cubic feet
 - Step 1: Take measurements of the length, width & height in inches
 - Step 2: Multiply length x width x height
 - Step 3: Divide the answer by 1728 to get volume in cubic feet



Cube (Cont)



- A - Add cubic feet measurements of all cargo to get total cubic feet requirement
- B - Add cubic feet measurements of all cargo vehicles to get total cubic feet space available
- Compare A to B, and coordinate for any external cargo lift assets required
- NEVER THAT SIMPLE



Cube (Cont)



- We do add cubic foot measurements of all cargo to get total cubic feet requirement
- Not all equipment comes in a rectangular shaped box.
- Odd sized and heavy items require other considerations
- Must use available space for maximum cube



Weight



- Weight of most military cargo is stenciled on the package. Cargo not stenciled must be weighed before stowing
- Total shipment weight should equal the sum of the individual cargo weights
- Weigh loaded vehicle and record on AUEL
- Dense cargo can cause a vehicle's weight limit to be reached before the cargo space is filled



Vehicle Data Plate



- Never exceed weight capacity of vehicle indicated on vehicle data plate

WEIGHT & DIMENSION DATA		WEIGHT	EMPTYS	CROSS CTRY	HIGH WAY
CONTINUATION OF LR PAYLOAD CARRIER FILLERS & HDT	PERCENT OF PAYLOAD				
					
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- Always use cross country weight limits



Vehicle Data Plate, cont.



- Axle weight capacity information is located on the vehicle data plate
- 3 different loading weights:
 - Empty, cross country & highway vehicle weight
 - Maximum loaded vehicle weight will always be the cross country weight



Material Handling Equipment



- Consider capabilities of available materiel handling equipment (MHE)
- Ensure MHE is staged along with required packing material prior to loading
- MHE capability must be equal to or greater than the load





Container Inspection



- Make sure to inspect container for:
 - Cleanliness
 - Tears in skin or holes (watertight integrity)
 - Mold and mildew
 - Door operation and door seals
- There may be added cost for exchanging container after it has been accepted



Container Considerations



- Consider how you will receive containers
 - If you load container that is on a chassis, you will need a ramp or MHE to lift the loads
 - If you load container without chassis, you will need MHE to place container on chassis after loading is completed
- Consider customs inspection requirements
- Consider BBPCT requirements



Loading Considerations



- Make sure vehicle is correctly configured
 - Based on transportation mode(s)
- Check UMC / Port call message for reduction requirements
 - Can use TB 55-46-1 to determine base vehicle height, length & width, and shipping configuration



Balancing Considerations



- Balancing weight is important
 - Unbalanced loads cause damage
- Rules of thumb for weight balance:
 - Load heavy cargo on the bottom
 - Distribute heavy items evenly over vehicle bed
 - + Check vehicle data plate for maximum axle weights





Load Considerations

- Pack cargo so it doesn't shift
 - Loading items of uniform size and weight helps simplify lashing
- Block and brace to keep load from shifting
 - Keep load low in vehicle
- Load items for one destination or group items together for ease of handling when offloading





Load Placement in Trucks and Semitrailers



- Select the right vehicle for the right job



Wrong



Right



Load Placement in Trucks and Semitrailers, cont.



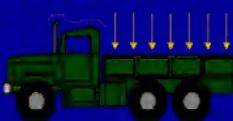
- Tires, axles & frame are designed to carry a load distributed as shown

COE Truck



20% 80%

Conventional Truck



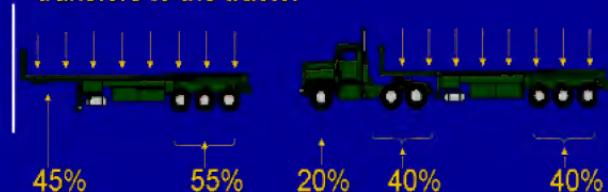
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Load Placement in Trucks and Semitrailers, cont.



- Distribute trailer loads equally between the rear tires & the fifth wheel to ensure load transfers to the tractor





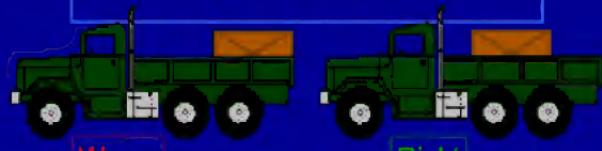
Load Placement in Trucks and Semitrailers, cont.



- This load bends the frame, overloads front tires & makes steering harder
- Place heavy part of load near rear axle for proper tire loading & to keep frame from bending



Load Placement in Trucks and Semitrailers, cont.



- This load bends the frame, overloads rear tires & makes steering almost impossible
- Set a concentrated load just ahead of the rear axle with the longest side on the floor



Load Placement in Trucks and Semitrailers, cont.



WRONG



RIGHT

- This placement overloads one spring & set of tires; brakes lock on the light side, causing skids
- Nothing is overloaded; frame will not twist & stress suspension



Load Placement Containers



Wrong

- This placement shortens tire life & bends the truck's rear-axle housing; applying trailer brakes may lock the wheels & cause flat spots & skidding



Wrong

- This placement overloads the trailer's rear wheels so that brakes will not function properly & rubber scuffs away



Load Placement Containers, cont.



Right

- This container is loaded with the load spread low on the floor. (What is missing?)



Record Weight



- Record weight & compare to the AUEL
 - Verify the actual weight & dimensions of each piece of cargo, and vehicle with cargo
 - Update AUEL if discrepancies are found
- You must physically weigh each vehicle after it is loaded

**NEVER EXCEED VEHICLE'S CROSS
COUNTRY WEIGHT LIMITS**



Lessons Learned



- Tractor trailer that overloaded a bridge



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Securing Cargo in Vehicles and Containers



Loading Vehicles and Containers



- Use boxes, tri-walls, containers, etc, to ship remainder of unit equipment and supplies.
- Proper packing and bracing protects equipment
- Containers provide:
 - Security
 - Weather Protection
 - Less damage to the cargo (if braced)



Packing Materials



- Types of packing materials:
 - Bubble wrap
 - Foam packing
 - Corrugated cardboard
 - Desiccant to dehumidify
 - Pneumatic & mechanical holding devices
- Materials also needed to close and secure boxes/cartons



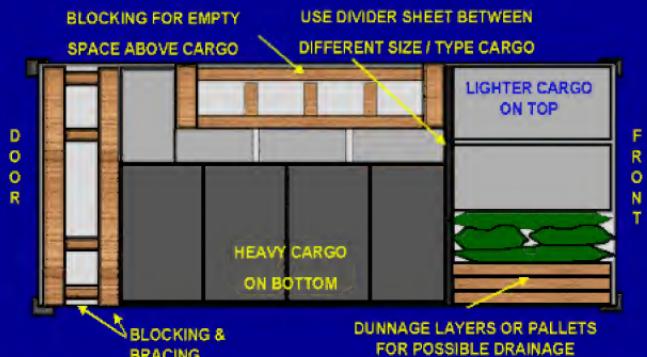
Containers



- Rules for loading containers:
 - Block & brace the cargo - bottom, sides & front (stay 6 inches away from the door)
 - Distribute the weight evenly - heavy items on the bottom of the container - never overload
 - Package liquid on dunnage
 - Group cargo according to use at destination for ease of handling when off-loading



Containers, cont.



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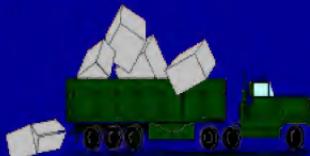
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Blocking, Bracing, Packing, Crating, Tiedown (BBPCT)

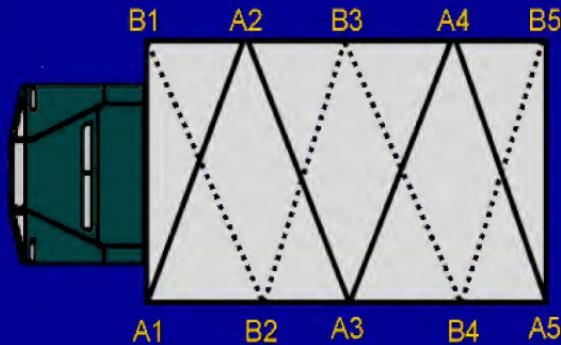


- Units are responsible for securing their cargo
- Lashing should be:
 - 1/2" manila rope, wire rope or banding material
 - Attach to cargo hooks on sides of trucks





Lashing





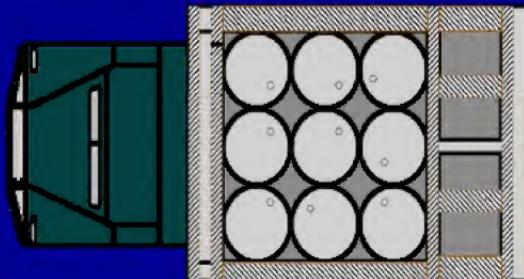
Blocking and Bracing



- Your unit is responsible for the blocking & bracing of unit equipment and containers
 - Use crib blocking whenever possible
 - Block cargo on all sides: front, back, sides & door area
 - Ensure there is no metal-to-metal contact
Use plywood, wood or cardboard



Blocking and Bracing a 2 1/2 ton truck rear



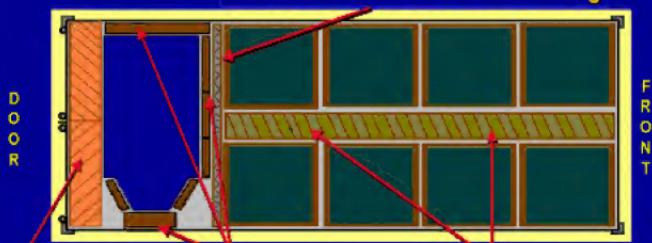
- Denotes Blocking & Bracing



Blocking and Bracing a Container



False wall / side to side bracing



6" B & B at door

Blocking

B & B between pallets



Cargo Protection



- Protect cargo from weather & elements
 - Place dunnage over corners to protect canvas
 - Cover open topped vehicles with canvas before lashing
 - Protect crew-served weapons from elements with a coating of grease



Marking of Vehicles



- Proper marking of unit vehicles and equipment:
 - FORSCOM/ARNG Reg 55-1, requires marking on front and back
 - Use 2" lettering placing UIC and SUN on bumpers
 - Suggested to mark all Secondary loads that may be moved separately
- See App G to FORSCOM/ARNG Reg 55-1



Special Cargo Considerations



Special Cargo Categories



- Hazardous cargo (discussed in another lesson)
- Other Categories
 - Sensitive items
 - Classified material
 - Pilferable items



Sensitive Items



- Reference FM-55-65, Appendix F
- Sensitive cargo is cargo that could be a threat to public safety if the cargo comes into the possession of adversaries
- Sensitive cargo must be secured & identified to port personnel so they can provide appropriate security





Sensitive Items, cont.



- Rules for sensitive cargo:
 - Packaging material must be strong & durable enough to provide security protection in transit
 - Containers, vehicles & compartments must be secured with an appropriate locking device/seal
 - Sensitive items must be identified in the commodity code of the unit's AUEL
 - Container must NOT indicate in any way that it contains sensitive items



Classified Cargo



- Classified cargo is cargo requiring protection in the interest of national security
- Must NOT be identified on outer containers
- Unit provides special handling
- Classified material must be enclosed in 2 sealed containers: an inner container and outer container
- Units must comply with AR 380-5. Use Appendix F of FM 55-65 for additional information.



DD Form 1907



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Pilferable Items



- Pilferable items are items of value to individuals that can be readily removed & concealed (radios, binoculars, compasses, etc..)
 - Consider removing pilferable items from vehicles & packing them together





Security



- Be prepared for acts of sabotage, espionage & terrorism in both CONUS & OCONUS theaters
- Guard against theft & pilferage
- Degree of security required will determine the need for outside support
- References: FM 100-20
FM 55-65, Appendix F & G